XXXII. *Experiments to inveſtigate the Variation of Local Heat. By* James Six, *Eſq.*; *communicated by the Rev.* Francis Wollaſton, *LL.B. F. R. S.*

Read June 10, 1784.

BEING deſirous of inveſtigating the variation of local heat, I made the following experiments.

On the 4th of September, 1783, I placed thermometers in three different ſtations; one on the top of the high tower of Canterbury Cathedral, about 220 feet from the ground; another at the bottom of the ſame tower, at about 110 feet; and a third in my own garden*, not more than ſix feet from the ground. They were all carefully expoſed to the open air in a ſhady northern aſpect; the loweſt was as little liable to be affected by the reflection of the ſun's rays as the elevation would permit, the ſecond ſtill leſs, and the higheſt not at all. They continued unremoved in their ſeveral places, where I viſited them daily for the ſpace of three weeks, and minuted down the greateſt degree of heat and cold that happened each day and night in their reſpective ſtations†.

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* This garden is ſituate not far from the Cathedral, at the extremity of the buildings on the north ſide of the city.

† The thermometers here made uſe of were conſtructed to ſhew the greateſt degree of heat and cold which happened in the obſerver's abſence (deſcribed Phil. Tranſ. vol. LXXII. part I.), which rendered them particularly convenient on this occaſion. They had hung together for ſome time, and ſeldom differed half a degree from each other.

By theſe obſervations it appears, ſee Table I. that, notwithſtanding ſome irregularities, the heat of the days at the loweſt ſtation always exceeded that at the middle, and ſtill more the heat at the upper ſtation. As in many inſtances the higher regions of the atmoſphere have been found to be colder than the lower, and the thermometer in the garden was more liable to be heated by the reflection of the ſun's rays from the earth than the upper ones, a difference of this kind might have been expected. But I was greatly ſurpriſed to find the cold of the night at the loweſt, not only equal to, but, very frequently, exceeding the cold at the higher ſtations. As I wiſhed to know, whether theſe variations would continue the ſame in the winter, when the weather was colder; and whether a thermometer, placed at ſome diſtance from the city, having an elevation equal to that on the top of the Cathedral tower, would agree with it; on the 19th of December, 1783, I diſpoſed the three thermometers in the following manner: one in my garden; one on the top of the high tower, as before; and the third on the top of St. Thomas's Hill, about a mile diſtant from the city, where, at fifteen feet from the ground, it was nearly level with that on the Cathedral tower. Table II. contains the obſervations that were then made *. The weather at this time proving cold, favoured the experiment; and I now found the ſeveral thermometers nearly agreeing with each other in the day-time: but in the night, the cold at the lower ſtation exceeded the cold at the higher ones rather more than it did in the month of September, when the weather was warmer.

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* The few omiſſions in this Table were occaſioned by the ſeverity of the cold preventing my attending at a proper time the thermometers, which were at a conſiderable diſtance from each other.

At the time of taking theſe thermometrical obſervations, I likewiſe noted the different diſpoſitions of the atmoſphere in other reſpects: ſuch as the preſſure, moiſture, and dryneſs of the air; force and direction of the winds; quantity of rain; whether the appearances of the ſky were clear or cloudy, &c. as I apprehended the local variation of the thermometers might, in a certain degree, correſpond with ſome particular change in the ſtate of the atmoſphere.

The event anſwered my expectation in a ſingular manner in reſpect to the nocturnal variation; for it generally happened, that when the ſky was dark and cloudy, whatever was the condition of the atmoſphere with relation to the other particulars above enumerated, the thermometers agreed pretty nearly with each other; but, on the contrary, whenever the ſky became clear, the cold of the night at the loweſt ſtation in the garden conſtantly exceeded the cold at the top of the Cathedral tower, where the inſtrument was placed 220 feet from the ground, entirely expoſed to the open air, wind, dews, and rain, in a ſhady northern aſpect.

The local variations in the day-time ſeemed to be regulated by the general degree of heat only, without being affected by any other particular diſpoſition of the atmoſphere, or the clearneſs or cloudyneſs of the ſky, as the nocturnal variations were. In the month of September, when the glaſſes roſe from 60° to 70°, the heat at the lower ſtation conſtantly exceeded the heat at the upper ſtation; and in ſome meaſure proportionally, as the weather was hotter *. In December and January, when

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* As the heat at the lower ſtation exceeded the heat at the upper ones, when the weather was hot; and equally ſo, whenever the ſky was cloudy, as well as when it was clear; it appears, that the glaſs at the lower ſtation was not materially affected by the reflection of the ſun's rays from the earth, as at firſt I apprehended it would be.

from below 30° they ſeldom roſe to 40°, the local variation in the day-time nearly ceaſed, or was found in very ſmall degrees inclining ſometimes one way, ſometimes the other.

That the clearneſs of the ſky ſhould contribute to the coolneſs of the air in the night, is not at all ſurpriſing; but that, whenever the ſky becomes clear, the cold ſhould ſeem to ariſe from the earth, and be found in the greateſt degree, as long as it continues clear, in the loweſt ſituation, ſeems a little extraordinary: this, however, appeared to be the caſe, both in the warmer as well as in the colder weather, during the whole time theſe obſervations were taken, and remarkably ſo on the following days. On the firſt of January the weather was cold, the ſky cloudy, the glaſſes in the night were at 20°, and in the day at 34°: the wind which had been at S.E. the day before, changed in the evening to S. and brought on a thaw. On the ſecond of January clouds and miſty rain darkened the ſky all day; the wind blew briſkly at S.W.; the glaſſes in the night were at 32°½, in the day at 40°. On the third of January the clouds and rain continued, the weather growing ſtill warmer; wind at S.W. by S.; the glaſſes in the night were at 36°, in the day at 45°½. Theſe three days the weather gradually became warmer; and, while the ſky remained darkened by clouds, all the glaſſes in their ſeveral ſtations nearly agreed with each other. About noon, on the third of January, the ſky becoming clear, the air grew cooler; and going into my garden, about eight o'clock in the evening, I perceived the ſurface of the ground, which had been wet by the rain in the forenoon, began to be frozen. Looking immediately at the thermometer, I ſaw the mercury at 33°½; and obſerving a piece of wet linen hanging near the glaſs, not five feet from the ground, I took it into my hand, and found it not in the leaſt frozen; by which it appeared, that

that the degree of cold which had frozen the ſurface of the ground, had not then aſcended to the glaſs, nor to the linen, and conſequently had not been communicated to the air five or ſix feet above the earth. The next day I found, as I expected, a conſiderable local variation; the index for the cold of the night in the garden being at 32°, that on the hill being at 35°¾, and that on the top of the tower at 37°¾ *. Probably the weather did not continue clear the whole night; if it had, it is likely the degrees of cold would have been found proportionally greater at every ſtation. On the morning of the 4th there fell a miſty rain, which continued only till noon, when the ſky became clear again, and continued ſo till the 7th; during which time the nocturnal heights of the thermometers differed conſiderably from each other; but on the ſky's becoming cloudy, the local variation ceaſed.

Thermometrical obſervations, made under the ſame circumſtances in reſpect to the ſeaſon of the year, place, and ſituation †, may probably be liable to ſimilar local varia-

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* It is remarkable, that the thermometer on St. Thomas's hill did not vary ſo much from that in the garden, as that did which was on the Cathedral tower, although theſe two elevated glaſſes were within three feet of a perfect level with each other; the variations, however, as often as they happened, inclined the ſame way. The reaſon of this might probably be, that although the glaſs on the hill was at an equal altitude with that on the tower, in reſpect to the ground on which the Cathedral ſtands: yet the former was only 15 feet, while the latter was 220 feet from the ground.

† Situation in regard to hill or valley. The valley in which Canterbury ſtands is at that place about a mile in breadth, opening to the N.E.; the hills on either ſide do not riſe very ſudden, nor very high; the river Stour, divided into branches, paſſes through the city, and, about fourteen miles below, empties itſelf into the ſea, which waſhes the coaſt from the NN.W. round by the E. to the S.; diſtant from the city at different places from ſix to ſixteen miles.

tions: to thoſe who make them, the reſult of theſe experiments may be of ſome uſe. If convenient opportunity offered, I ſhould be glad, by the aſſiſtance of friends, to try the local difference of heat and cold in more diſtant, as well as more elevated, ſituations.

By experiments of this kind it may poſſibly in ſome meaſure be found, how far evaporations from the earth, at certain times, or vapours aſcending, deſcending, or meeting, in different parts of the atmoſphere, may increaſe or diminiſh the heat of the air in thoſe places: or whether different degrees of heat and cold (ſubject however to change) may not be found in different ſtrata of air, or vapour, floating in different parts of the atmoſphere; or in what degree and proportion, the cold increaſes at different altitudes and in different ſeaſons of the year: whether the cold, which is known to be very intenſe in the ſummer time on the tops of high mountains, receives a proportional increaſe, or be not leſs ſubject to variety by the return of winter and ſummer, night and day, than what we experience in the plains below.

March 10, 1784. **JAMES SIX.**

TABLE I.

The greateſt daily variation of heat and cold in the atmoſphere, from the 4th to the 24th o
1783, taken from three different ſtations, and compared together. One thermometer
tower in Canterbury, 220 feet from the ground; another at the bottom of the ſame tower,
third in a garden, about ſix feet from the ground. N. B. The nocturnal degrees of cold be
night immediately preceding the day to the date of which they are placed.

	Greateſt degree of cold in the night.					Greateſt degree of heat in the day.					
	Thermometer in the garden.	Thermometer at the bottom of the tower.	Thermometer on the top of the tower.	Difference of garden from bottom of tower.	Difference of garden from top of tower.	Thermometer in the garden.	Thermometer at the bottom of the tower.	Thermometer on the top of the tower.	Differnce of garden from bottom of tower.	Difference of garden from top of tower.	
Sept. 4	50½°	—°	51°	—°	−0½°	66°	61°	61°	+5°	+5°	Morning ſtill and foggy; w in the forenoon at S.W.; in the afternoon and night
5	48	47¼	47½	+0¾	+0½	62½	61½	61½	+1	+1	Morning cloudy; heavy r afternoon; wind high at 29.3.
6	48½	50	50½	−1½	−2	66½	65¼	64½	+1¼	+2	Morning rained a little; w S.W. moſt part of the day;
7	48	49½	49½	−1½	−1½	63½	62½	63	+1	+0½	Morning clear; continued day; wind very high at W
8	50	51	51	−1	−1	66	62½	62	+3½	+4	Sometimes clear, ſometim very high at W.; bar. 29
9	55½	55½	55½	—	—	65	63	62½	+2	+2½	Morning cloſe and cloudy wind briſk at S.W.; bar.
10	45	47	47½	2	−2½	63¾	59¾	59¾	+4	+4	Morning and great part o wind high at S.W.; eve 29.6.
11	42	45	45½	−3	−3½	63½	62	60½	+1½	+3	Morning clear; cloudy a wind at S.; evening ſtill;
12	52½	53½	54	−1	−1½	69	66½	65	+2½	+4	Morning cloudy; wind hi ſtill and clear; bar. 29.4.
13	45	48	48½	−3	−3½	65	62	62	+3	+3	Morning clear; a little rair afternoon; wind briſk at S
14	57½	57	57	+0½	+0½	68½	66½	64½	+2	+4	Morning cloudy; moiſt war at S.W.; miſty rain; clo 29.8.
15	57	57	58	—	−1	70	68½	66	+1½	+4	Morning cloudy; wind m the evening changed to N
16	52½	53	52½	−0½	—	65½	62½	61	+3	+4½	Morning hazy; thin clou wind at N.E.; cloſe and w
17	51½	51½	51	—	+0½	62½	61	60½	+1½	+2	Dull and hazy moſt part breeze of wind at N.E.;
18	57	57	57	—	—	62½	62	61	+0½	+1½	Very dull all day; wind bri

24th of September,
meter placed on a
tower, 110; and a
cold belong to the

foggy; wind began to blow
at S.W.; clouds and rain
and night; bar. 29.3.
heavy rain; clear in the
l high at W.N.W.; bar.

little; wind very high at
the day; bar. 29.5.

ntinued ſo moſt part of the
igh at W.; bar. 29.8.

ſometimes cloudy; wind
bar. 29.9.

d cloudy; clear at noon;
7.; bar. 29.5.

it part of the day clear;
W.; evening clear; bar.

cloudy about noon; briſk
ing ſtill; bar. 29.8.

wind high at S.; evening
ar. 29.4.

little rain at noon; cloudy
briſk at S.; bar. 29.0.

moiſt warm air; wind briſk
ain; cloudy evening; bar.

wind moderate S.W.; in
ged to N.; bar. 29.5.

in clouds all day; little
oſe and warm; bar. 29.8.

oſt part of the day; little
N.E.; bar. 30.1.

wind briſk at N.E.; bar

[illegible]	[illegible]	[illegible]	[illegible]	——	[illegible]		62½	61	60½	+1½	+2	[illegible] breeze of wind at N.E.;
18	57	57	57	——	——		62½	62	61	+0½	+1½	Very dull all day; wind bri 29.9.
19	53	54½	55½	−1½	−2½		70	67½	67	+2½	+3	Morning clear; a little rain wind S.S.E.; bar. 29.6.
20	56	56	55½	——	+0½		64½	63	61	+1½	+3½	Cloudy all day, with rain clear at night; bar. 29 4.
21	44½	47½	48½	−3	−4		63½	61	60½	+2½	+3	Morning clear; wind at S.W of the day; wind S.; bar.
22	56	57	57	−1	−1		59	58	58	+1	+1	Rain moſt part of the day wind S.W.; bar. 29.6.
23	50	49	50	+1	——		63	59½	59½	+3½	+3½	Morning ſtill and miſty; a the afternoon, clear all the wind S.W., bar. 29 6.
24	43¾	46	46	−2¼	−2¼		63	59¾	58¾	+3¼	+4¼	Clear all day; wind W. and

N.E. ; bar. 30.1.

wind briſk at N.E. ; bar

little rain in the afternoon ;
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ith rain and wind S.W. ;
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d at S.W. ; clear moſt part
S. ; bar. 29.8.

the day ; evening hazy ;
29.6.

miſty ; a little ſhower in
ar all the reſt of the day ;
29 6.

W. and N.W. ; bar. 29.8.

TABLE

TABLE II.

The greateſt daily variation of heat and cold in the atmoſphere from the 20th of December, 8th of January, 1784, taken from three different ſtations, and compared together. Or placed on a tower in Canterbury, 220 feet from the ground; another on a hill, a mile the ſame level with that on the tower; a third in a garden, about ſix feet from the groun nocturnal degrees of cold belong to the night immediately preceding the day to the they are placed.

	Greateſt degree of cold in the night.					Greateſt degree of heat in the day.					
	Thermometer in the garden.	Thermometer on the hill.	Thermometer on the tower.	Difference of garden from hill.	Difference of garden from tower.	Thermometer in the garden.	Thermometer on the hill.	Thermometer on the tower.	Difference of garden from hill	Difference of garden from tower.	
Dec. 20	20°	25°	25¼°	−5°	−5¼°	39¾°	37¼°	39¼°	+1½°	−0½°	Evening preceding clear wind briſk at W.; clou moiſt; barometer at 29
21	29¾	30¾	32	−1	−2¼	37¾	36½	36	−0¾	−0¾	Morning clear on the hi little wind at N.W.; noon; a little ſnow; ba
22	22	24½	25½	−2½	−3½	34	34¾	36	−0¾	−2	Morning ſlight fog in th at N.W.; air moiſt; little ſnow; bar. 29.7.
23	31¼	31¼	32	—	−0¾	39¾	40¼	37½	−0½	+2¼	Dark and cloudy all day; air moiſt; evening fogg
24	31¾	33	34½	−1¼	−2¾	43¾	42	41¼	+1¾	+2½	Morning rainy; clear at the evening, wind at N
25	26	27	—	−1	—	36	35¾	—	+0¼	—	Morning cloudy; wet mi towards evening rain night clear bar. 29.2.
26	26½	26½	28	—	−1½	33½	34	36	−0½	−2½	Morning foggy, a little evening clear in the ze N. bar. 28.9.
27	25	26½	28	−1½	−3	36	34¾	35½	+1¼	−0½	Morning clear; cloudy a in the evening modera N.E.; bar. 29.3.
28	30	29	29½	+1	+0½	31¼	30	33½	+1¼	−2¼	Morning dark and cloudy N.E.; air dry, and felt
29	21	21½	22	−0½	−1	24½	24¾	—	−0¼	—	Morning hazy; dry mi cold and briſk at S.E. b
30	15½	15	16½	+0½	−1	22	21½	21½	+0½	+0½	Morning clear in the ze below; wind very col bar. 29.7.
31	12¼	11¾	13	+0½	−0¾	21½	—	21½	—	—	Sometimes clear, ſomet briſk at S.E.; evenin wind S. very high in the
Jan. 1	20	—	20	—	—	34	—	33½	—	+0½	Wet miſt all day; wind bar. 29.4.
2	32½	32	32½	+0½	—	40	39½	40	+0½	—	Morning thick fog and mi afternoon and evening with rain; bar. 29.6.
											Morning rainy; wind S.

ember, 1783, to the
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mile diſtant, but on
ground. N. B. The
o the date of which

ing clear; morning clear;
V.; cloudy at noon; air very
ter at 29.9.
n the hill; fog in the city;
N.W.; air moiſt: cloudy at
now; bar. 29.8.
fog in the city; little wind
moiſt; cloudy at noon, a
. 29.7.

all day; wind briſk at S.W.;
ing foggy; bar. 29.8.

clear at noon; cloudy late in
ind at N.; bar. 29.6.

; wet miſt; wind briſk at E.;
g rain mixed with ſnow;
r. 29.2.
a little ſnow about noon;
n the zenith; little wind at

cloudy at noon; little ſnow
moderate breeze of wind at
.3.

d cloudy; wind very briſk at
and felt very cold, bar. 29.3.

dry miſty air; wind very
t S.E. by E., bar. 29.7.

in the zenith; dry miſty fog
very cold and briſk at S.E.

, ſometimes cloudy; wind
evening rain with ſnow;
gh in the night; bar. 29.4.

y; wind moderate at W.;

g and miſty rain; wind S.E.;
evening very high at S.W.
. 29.6.
wind S.W. by W.; clear at

2	32½	32	32½	+0½	—	40	39½	40	+0½	—	Morning thick fog and mi afternoon and evening with rain; bar. 29.6.
3	36	35½	36	+0½	—	45½	45	45½	+0½	—	Morning rainy; wind S. noon; afternoon and ev ſtill; wind S.W.; bar.
4	32	35½	37¾	−3¾	−5¼	46½	44¾	45½	+1¾	+1	Morning miſty rain; win ing very clear and ſtill;
5	26¾	29¾	31	−3	−4¼	36½	35½	—	+1	—	Morning very clear; littl ing very clear and ſtill;
6	21½	26	27½	−4½	−6	31	30¾	—	+0¼	—	Morning very clear; n wind at SE.; evening bar. 30.2.
7	16	19	20½	−3	−4½	29	27½	27½	+1½	+1½	Morning very clear; e evening dark and clo S.E.; bar. 30.0.
8	26	25½	25½	+0½	+0½	32	32	31½	—	+0½	Morning dark and cloſe wind W.N.W.; bar. 2

g and miſty rain; wind S.E.;
evening very high at S.W.
. 29.6.
wind S.W. by W.; clear at
on and evening very clear and
V.; bar. 29.6.

ain; wind high at S.; even-
nd ſtill; bar. 29.8.

ear; little wind at N.E. even-
nd ſtill; bar. 30.1.

clear; moderate breeze of
evening very clear and ſtill;

clear; cloudy about noon;
and cloudy; little wind at
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and cloſe; very dark all day;
; bar. 29.8.

TABLE I.

The greatest daily variation of heat and cold in the atmosphere, from the 4th to the 24th of September, 1783, taken from three different stations, and compared together. One thermometer placed on a tower in Canterbury, 120 feet from the ground; another at the bottom of the same tower, 110; and a third in a garden, about five feet from the ground. N. B. The nocturnal degrees of cold belong to the night immediately preceding the day to the date of which they are placed.

	Greatest degree of cold in the night					Greatest degree of heat in the day.					
	Thermometer in the garden.	Thermometer at the bottom of the tower.	Thermometer on the top of the tower.	Difference of garden from bottom of tower.	Difference of garden from top of tower.	Thermometer in the garden.	Thermometer at the bottom of the tower.	Thermometer on the top of the tower.	Difference of garden from bottom of tower.	Difference of garden from top of tower.	
Sept. 4	50½°	—°	51°	—°	−½°	66°	61°	61°	+5°	+5°	Morning still and foggy; wind began to blow in the forenoon at S W.; clouds and rain in the afternoon and night; bar. 29.3.
5	48	47¾	47¾	+0¼	+0¼	62¾	61¾	61¾	+1	+1	Morning cloudy, and very foggy; clear in the afternoon; wind high at W N W.; bar. 29.3.
6	48¼	50	50¼	−1¾	−2	66¼	65¼	64¼	+1	+2	Morning misty a little; wind very high at S W. most part of the day; bar. 29.5.
7	48	49½	49½	−1½	−1½	63½	62½	63	+1	+0½	Morning clear, overcast for most part of the day; wind very high at W.; bar. 29.8.
8	50	51	51	−1	−1	66	62½	62	+3½	+4	Sometimes clear, sometimes cloudy; wind very high at W.; bar. 29.9.
9	55½	55½	55½	—	—	65	63	61½	+2	+3½	Morning close and cloudy; clear at noon; wind brisk at S.W.; bar. 29.5.
10	45	47	47½	−2	−2½	63½	59½	59½	+4	+4	Morning and great part of the day clear; wind high at S W., evening clear; bar. 29.6.
11	42	45	45½	−3	−3½	65½	62	60½	+3½	+5	Morning clear, cloudy about noon; high wind at S., evening still; bar. 29.8.
12	52½	53½	54	−1	−1½	69	66½	65	+2½	+4	Morning cloudy, wind high at S.; evening still and clear; bar. 29.4.
13	45	48	48½	−3	−3½	65	62	62	+3	+3	Morning clear; a little rain at noon; cloudy afternoon, wind brisk at S.; bar. 29.0.
14	57½	57	57	+0½	+0½	68½	66½	64½	+2	+4	Morning cloudy, moist warm air, wind brisk at S W.; misty rain, cloudy evening; bar. 29.8.
15	57	57	58	—	−1	70	68½	66	+1½	+4	Morning cloudy, wind moderate S W.; in the evening changed to N.; bar. 29.5.
16	52½	53	52½	−0½	—	65½	62½	61	+3	+4½	Morning hazy, thin clouds all day; little wind at N.E.; close and warm; bar. 29.6.
17	51½	51½	51	—	+0½	62½	61	60½	+1½	+2	Dull and hazy most part of the day; little breeze of wind at N E.; bar. 30.1.
18	57	57	57	—	—	62½	62	61	+0½	+1½	Very still all day, wind brisk at N E.; bar. 29.9.
19	53	54½	55½	−1½	−2½	70	67½	67	+2½	+3	Morning clear; a little rain in the afternoon; wind S.E.; bar. 29.6.
20	56	56	55½	—	+0½	64½	63	61	+1½	+3½	Cloudy all day, with rain, and wind S W.; clear at night; bar. 29.4.
21	44½	47½	48½	−3	−4	65½	62	60½	+3½	+5	Morning clear; wind at S W.; clear most part of the day; wind N.; bar. 29.8.
22	56	57	57	−1	−1	59	58	58	+1	+1	Rain most part of the day, evening hazy; wind N W.; bar. 29.6.
23	50	49	50	+1	—	63	59½	59½	+3½	+3½	Morning still and misty, a little shower in the afternoon, clear all the rest of the day; wind S W.; bar. 29.6.
24	43½	46	46	−2½	−2½	63	59½	58½	+3½	+4½	Clear all day, wind W. and N W.; bar. 29.6.

TABLE II.

The greatest daily variation of heat and cold in the atmosphere from the 20th of December, 1783, to the 8th of January, 1784, taken from three different stations, and compared together. One thermometer placed on a tower in Canterbury, 220 feet from the ground; another on a hill, a mile distant, but on the same level with that on the tower; a third in a garden, about six feet from the ground. N. B. The nocturnal degrees of cold belong to the night immediately preceding the day to the date of which they are placed.

	Greatest degree of cold in the night					Greatest degree of heat in the day					
	Thermometer in the garden	Thermometer on the hill	Thermometer on the tower	Difference of garden from hill	Difference of garden from tower	Thermometer in the garden	Thermometer on the hill	Thermometer on the tower	Difference of garden from hill	Difference of garden from tower	
Dec 20	20	25	25½	−5	−5½	39½	37¼	39½	+2¼	−0½	Evening preceding clear; morning clear, and but little wind; cloudy at noon, and very [illegible]; barometer 29.9
21	29½	30½	32	−1	−2½	37	39½	37½	−2½	−0½	Morning clear on the hill; fog in the city; little wind at N.W.; [illegible] cloudy at noon, a little snow; bar. 29.8
22	28	30½	31½	−2½	−3½	34	34½	36	−0½	−2	Morning slight fog in the city; little wind at N.W.; [illegible] cloudy at noon, a little snow; bar. 29.9
23	31½	31½	32	—	−0½	39¾	40¼	37¼	−0½	+2½	Dark and cloudy all day; wind brisk at S.W.; [illegible] evening foggy; bar. 29.8
24	31½	33	34¼	−1½	−2¾	43¾	42	41½	+1¾	+2¼	Morning rainy, clear at noon, cloudy late in the evening; wind [illegible]; bar. 29.6
25	26	27	—	−1	—	36	35½	—	+0½	—	Morning cloudy, wet and [illegible], wind brisk at E., towards evening rain mixed with snow; night [illegible]; bar. 29.3
26	26½	26½	28	—	−1½	33½	34	36	−0½	−2½	Morning foggy, a little snow about noon; evening clear in the zenith, little wind at N.; bar. 28.9
27	25	26½	28	−1½	−3	36	34½	36½	+1½	−0½	Morning clear, clouds at noon, little snow in the evening, [illegible] showers of snow at N.E.; bar. 29.3
28	30	29	29½	+1	+0½	31½	30	33	+1½	−1½	Morning dark and cloudy; wind very brisk at N.E., air dry, and till late cold; bar. 29.3
29	21	21½	22	−0½	−1	24¼	24¾	—	−0½	—	Morning [illegible] very misty; wind very cold and brisk at [illegible]; bar. 29.7
30	15½	15	16½	+0½	−1	22	21½	21½	+0½	+0½	Morning clear in the zenith, dry misty fog below; wind very cold and brisk at S.E.; bar. 29.7
31	12½	11¾	13	+0¾	−0½	21½	—	21½	—	—	Sometimes clear, sometimes cloudy; wind brisk at S.E.; evening rain with snow, wind S. very high in the night; bar. 29.4
Jan. 1	20	—	20	—	—	34	—	33½	—	+0½	Wet rain all day; wind moderate at W.; bar. 29.4
2	32½	32	32½	+0½	—	40	39½	40	+0½	—	Morning thick fog and misty rain; wind S.E.; afternoon and evening very high at S.W. [illegible]; bar. 29.5
3	36	35½	36	+0½	—	45½	45	45½	+0½	—	Morning rainy, wind S.W. by W.; clear at noon, afternoon and evening very clear and still; wind W.; bar. 29.6
4	32	35½	37½	−3½	−5½	46	44½	45	+1½	+1	Morning misty rain; wind high at S.; evening very clear and still; bar. 29.8.
5	26½	29½	31	−3	−4½	36½	35½	—	+1	—	Morning very clear, little wind at N.E.; evening very clear and still; bar. 30.1
6	21½	26	27½	−4½	−6	31	30½	—	+0½	—	Morning very clear; moderate breeze of wind at S.E.; evening very clear and still; bar. 30.2
7	16	19	20½	−3	−4½	29	27½	27½	+1½	+1½	Morning very clear, cloudy about noon; evening dark and cloudy; little wind at S.E.; bar. 30.0
8	26	25½	25½	+0½	+0½	32	32	31½	—	+0½	Morning dark and close; very dark all day; wind W.N.W.; bar. 29.8